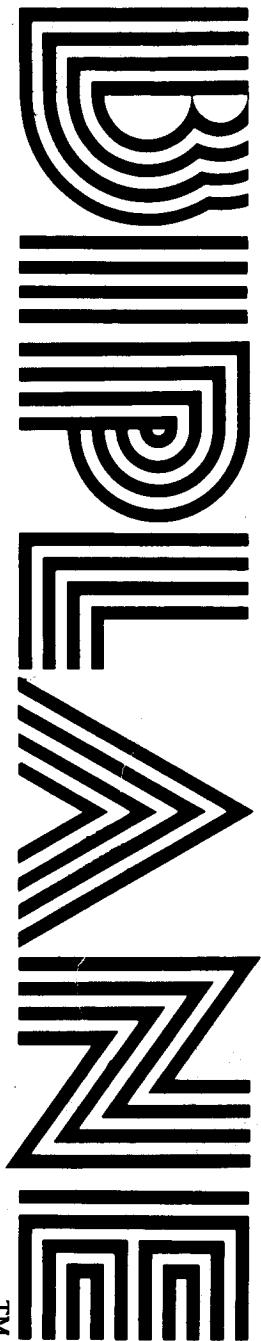


FUN GAMES INC.

**INSTRUCTION
MANUAL**

JANUARY 1976



TM

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GENERAL INSTRUCTIONS

INSTALLATION:

Open back of cabinet and MAKE SURE ALL BOARDS ARE PROPERLY SEATED INTO CARD CAGE. Plug into AC Power.

PRICE PER GAME SWITCH:

Located at the top of the memory board is the price per game switch. Up is one coin per game and down is two coins per game.

GAME TIME POT:

Directly below the price per game switch is the game time pot.

WHITE PLANE SHOT RANGE POT:

Directly below the game time pot is the white plane shot range pot. Turning clockwise increases shot range. Range should be adjusted to be equal to black plane range.

VOLUME 2 POT (Location "2"):

Volume for white plane is controlled by the top pot on the *sync* board. Clockwise increases volume.

VOLUME 1 POT (Location "1"):

Directly below the volume 2 pot is the black plane volume. Operates same as volume 2 pot.

NOTE: FOLLOWING CONTROLS ARE FACTORY SET. QUALIFIED TECHNICAL PERSONNEL ONLY SHOULD ADJUST.

NOISE VOLUME:

Location #4 controls shot and boom plane relative volume.

PITCH 2:

Controls pitch of black plane motor.

TONE 2:

Controls tone of black plane motor.

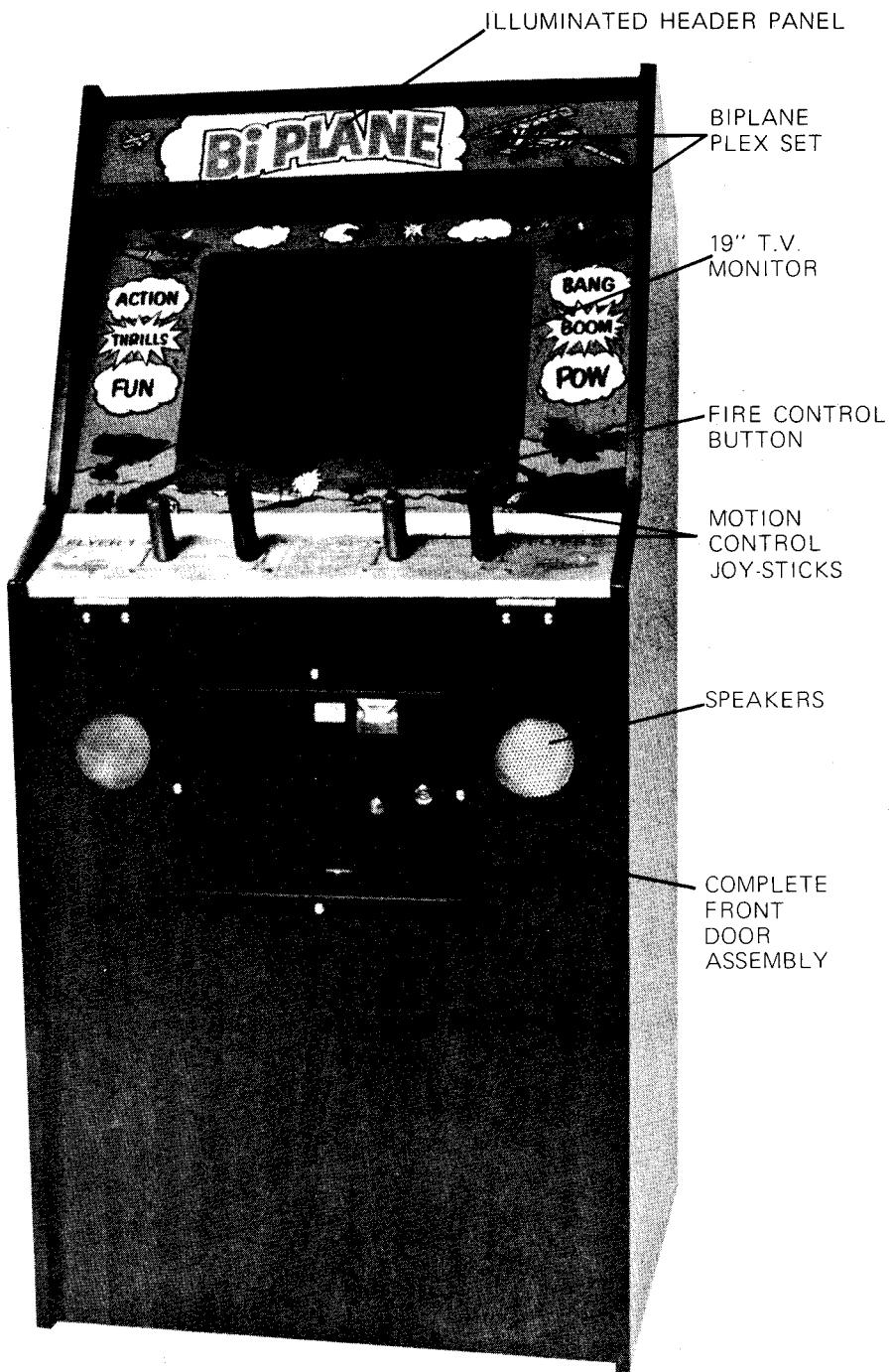
PITCH 1:

Same as pitch 2 for white plane.

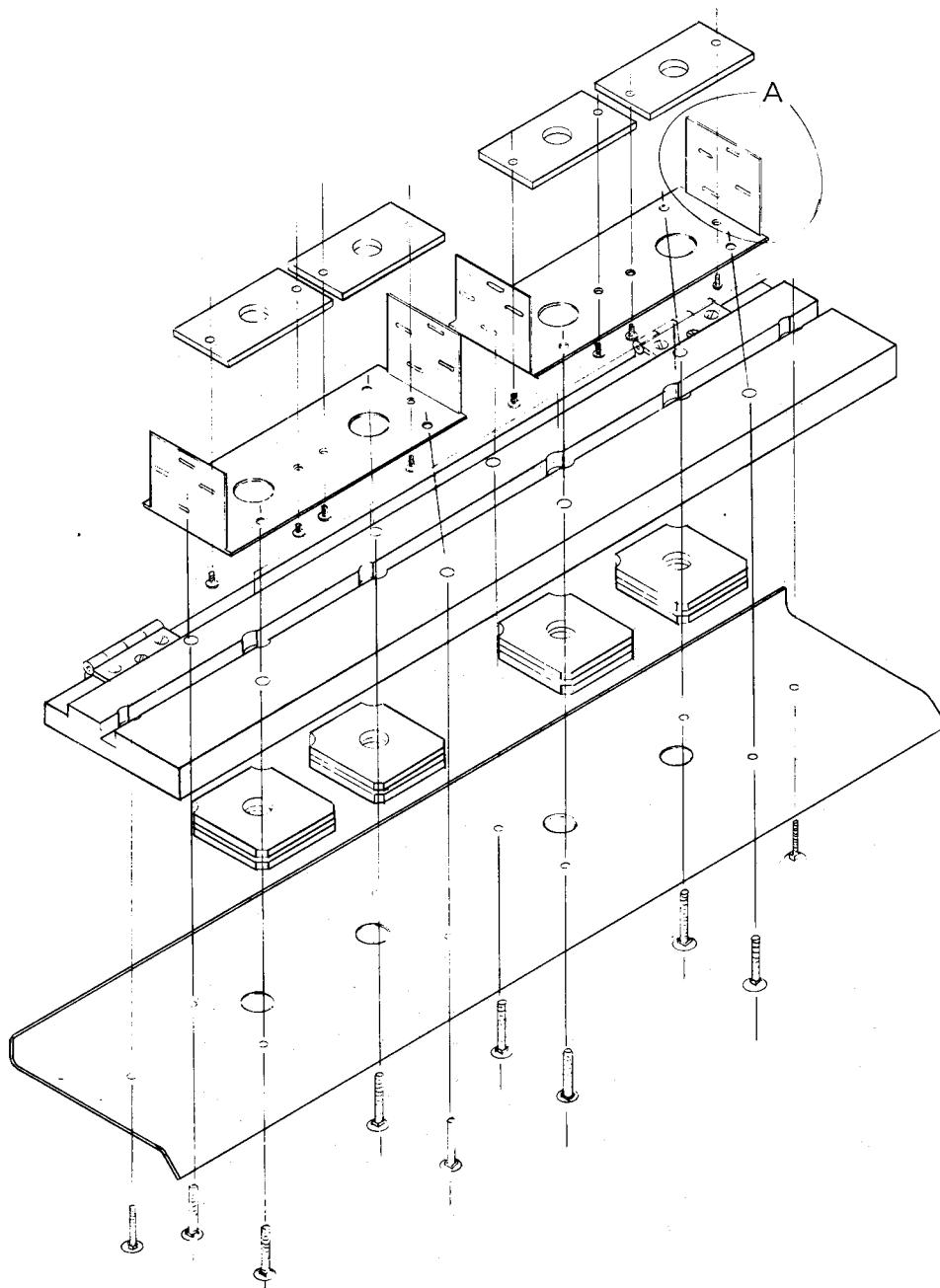
TONE 1:

Same as tone 2 for white plane.

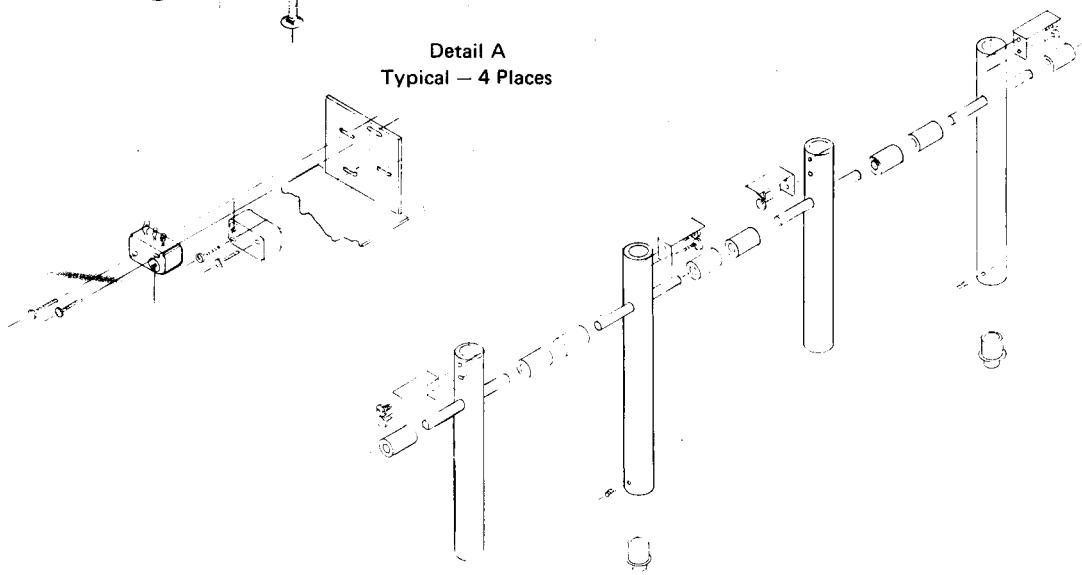
NOTE: BE SURE ALL BOARDS ARE PROPERLY SEATED, INCLUDING INTER-CONNECT BOARDS IN HARNESS CONNECTOR.

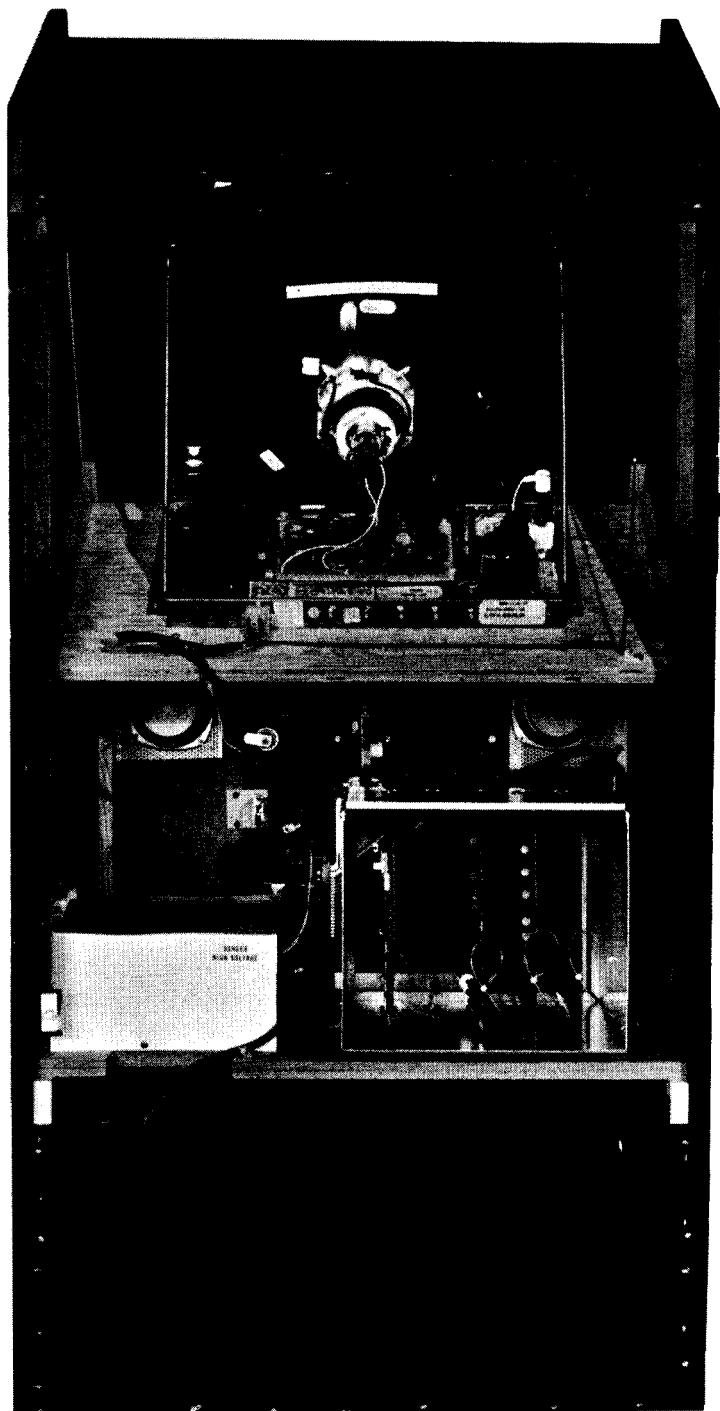


AND DESCRIPTION

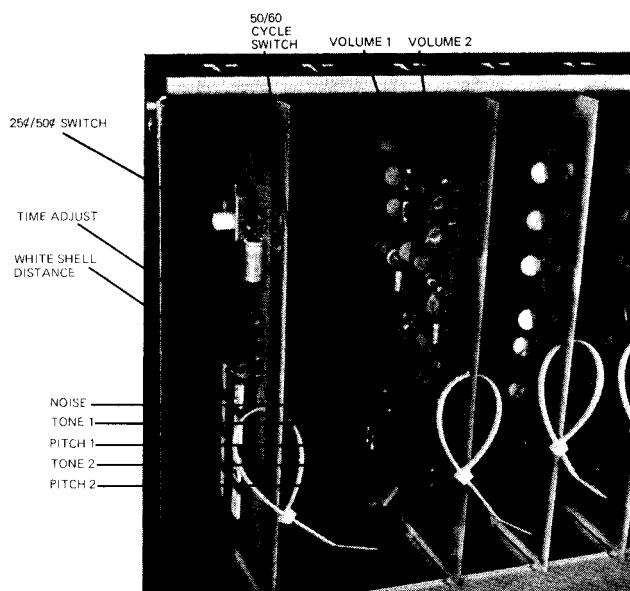
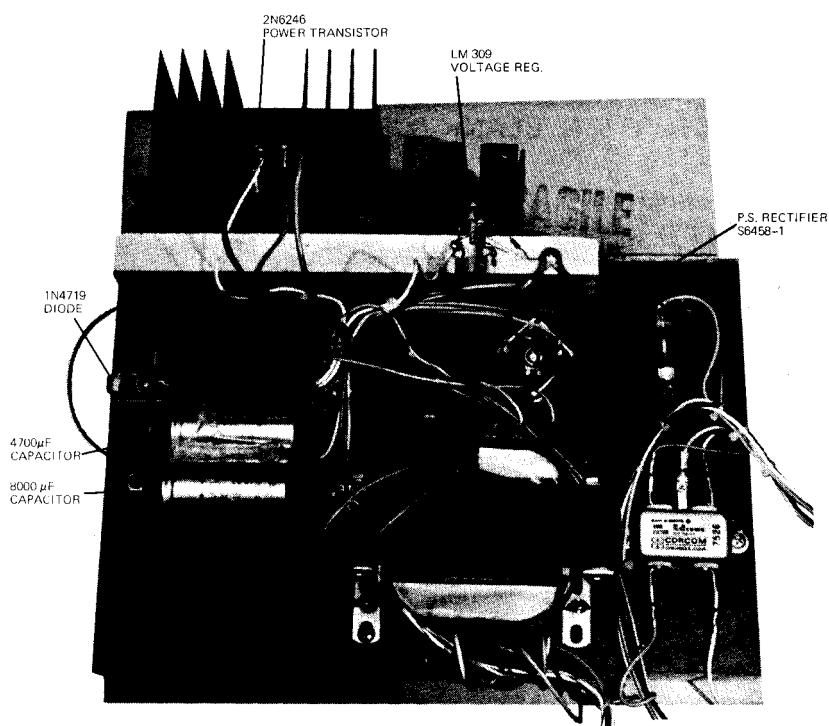


Detail A
Typical – 4 Places





COMPONENTS AND DESCRIPTION



TROUBLESHOOTING

TROUBLESHOOTING GUIDE

AUDIO

1. Check speakers and connections
2. Adjust audio controls on synch board
3. Change synch board

VIDEO (RIPPLE, DISTORTION, BLANK SCREEN)

1. Measure +5V
2. Check interlock switches
3. Shorted diode in P.S. rectifier
4. Change synch board

VIDEO (SHAKE)

1. Adjust T.V. controls
2. Change crystal/4024 I.C. on synch board

MOTION

1. Check control panel switches
2. Switch motion boards – if problem persists on same side (ie. black or white plane)
change memory board

SCORING

1. Change memory board

Important: Severe damage will occur if any board but the synch board is inserted in synch board socket.

1. Check control panel switches
2. Switch motion boards – if problem persists on same side (i.e., black or white plane) change memory board

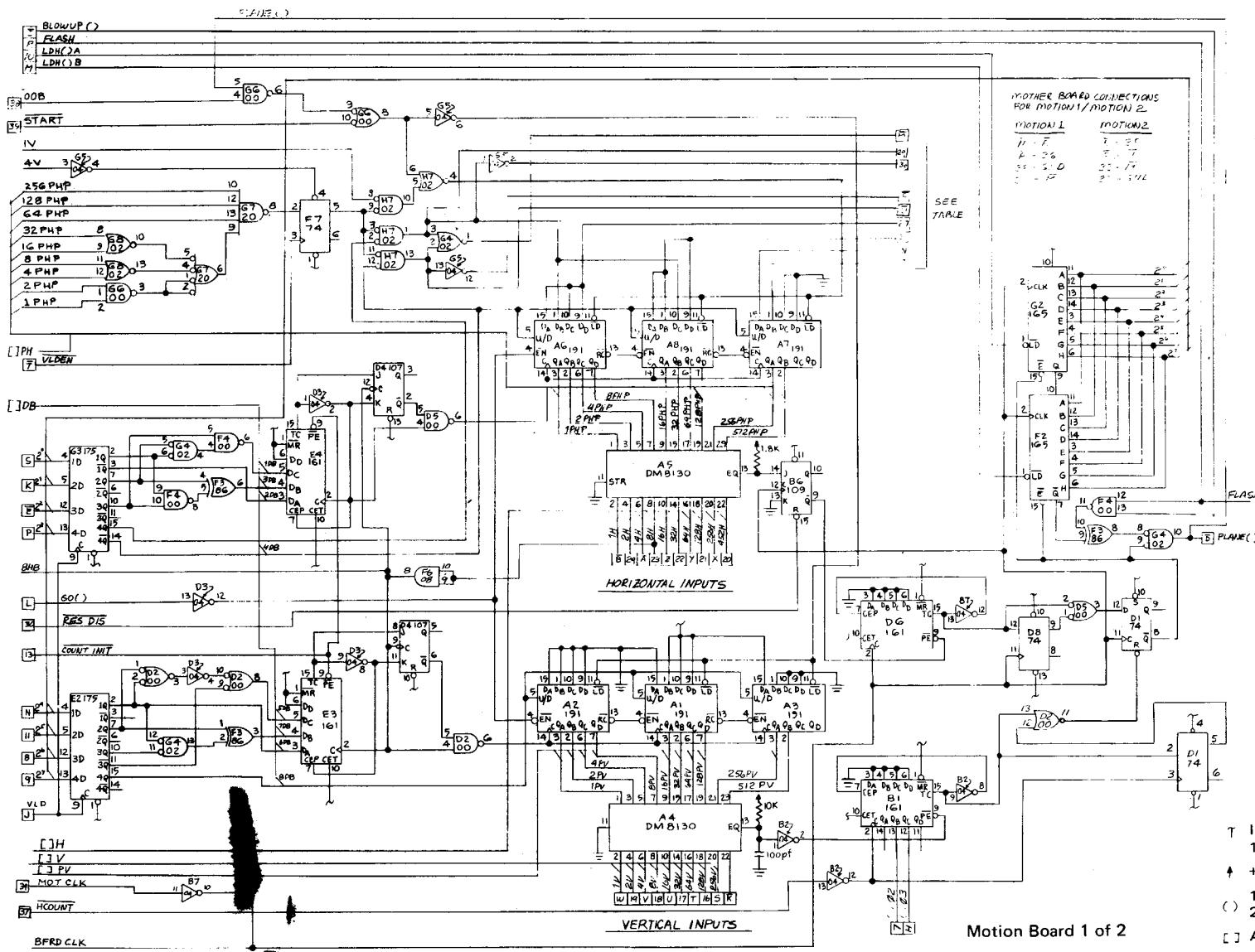
PARTS LIST

| PART # | DESCRIPTION | UNIT PRICE |
|---------------|-------------------------|-------------------|
| 300-200 | Power Supply | 75.00 |
| 500-206 | Mother Board | 75.00 |
| 500-201 | Motion Board | 250.00 |
| 500-202 | Synch Board | 250.00 |
| 500-204 | Memory Board | 250.00 |
| 500-200 | Set of PC Boards w/Cage | 750.00 |
| 600-200 | Control Panel | 75.00 |
| 400-100 | Coin Door Assembly | 55.00 |
| 34-64581 | P.S. Rectifier | 10.29 |
| 36-LM309 | P.S. Voltage Regulator | 3.54 |
| 42-0019 | 19" Monitor, Motorola | 295.00 |
| 41-5006 | Speakers | 5.70 |
| 46-0051 | Switch, Cherry, E51 | 2.82 |
| 46-0903 | Fire Button, Switch | 1.59 |
| 47-0001 | Coin Counter | 9.72 |
| 82-0001 | P.S. Transformer | 42.75 |
| 35-14318 | Crystal 14.318 MHZ | 5.04 |
| 37-4024 | 4024 I.C. | 6.69 |
| 32-2N6246 | 2N6246 Power Transistor | 3.69 |

PRICE LIST

Minimum Order - \$25.00

SCHEMATICS

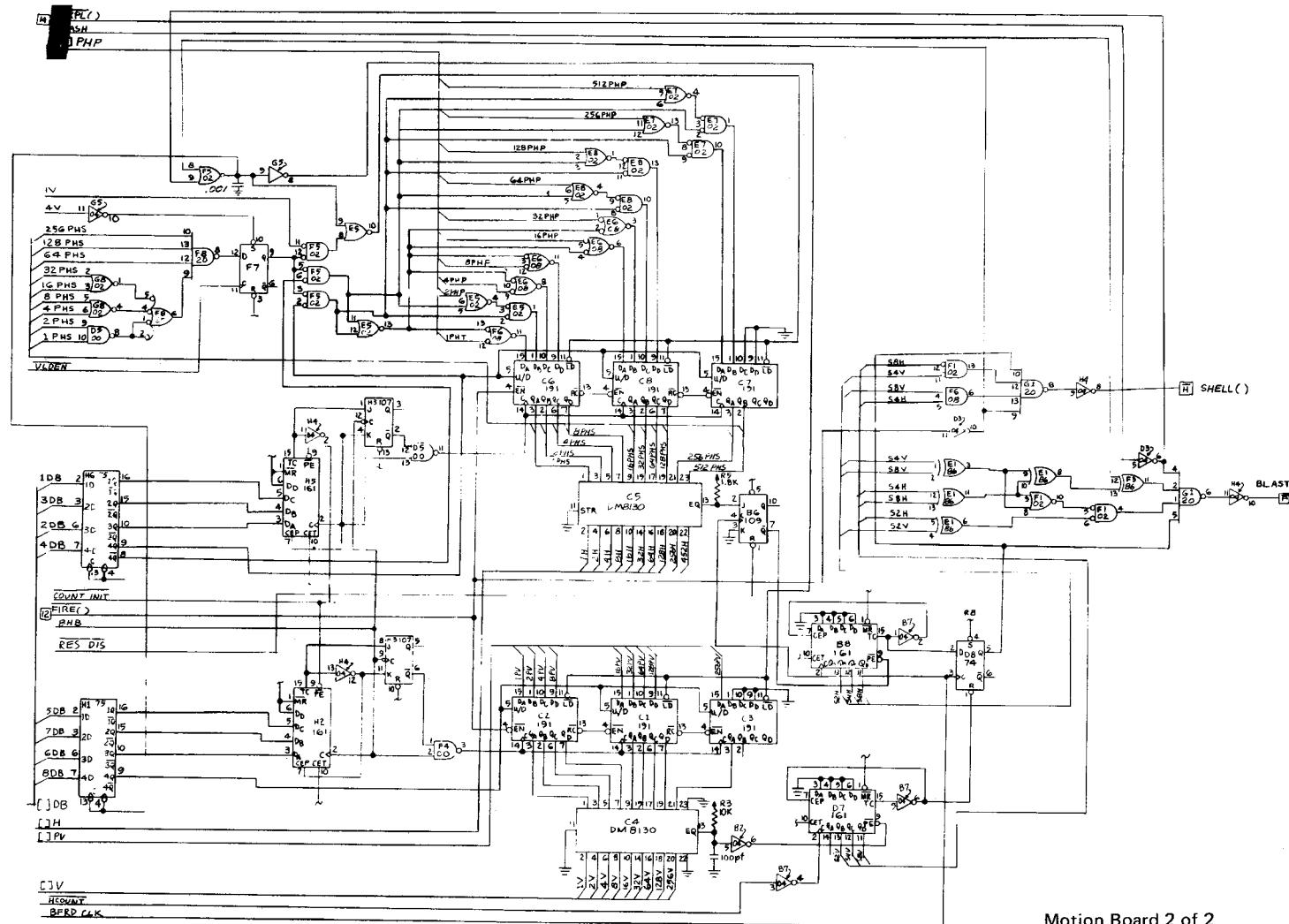


↑ Indicates pull up to +5 thru 1K RES.

1 + 5

() 1 for board one.
() 2 for board two.

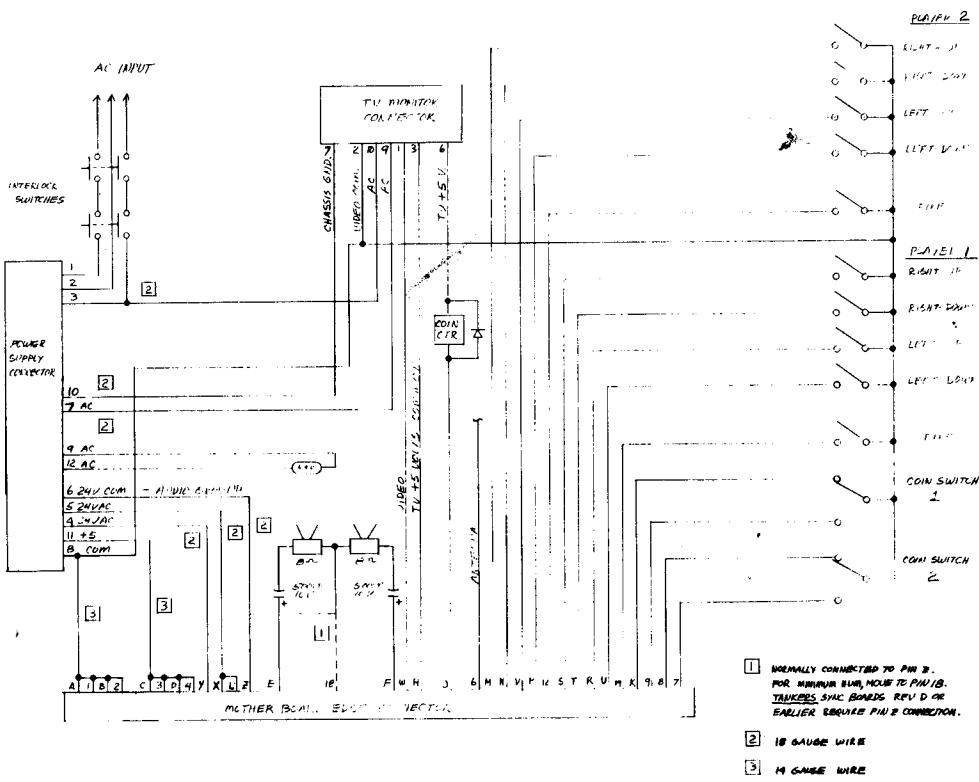
All signals of similar name



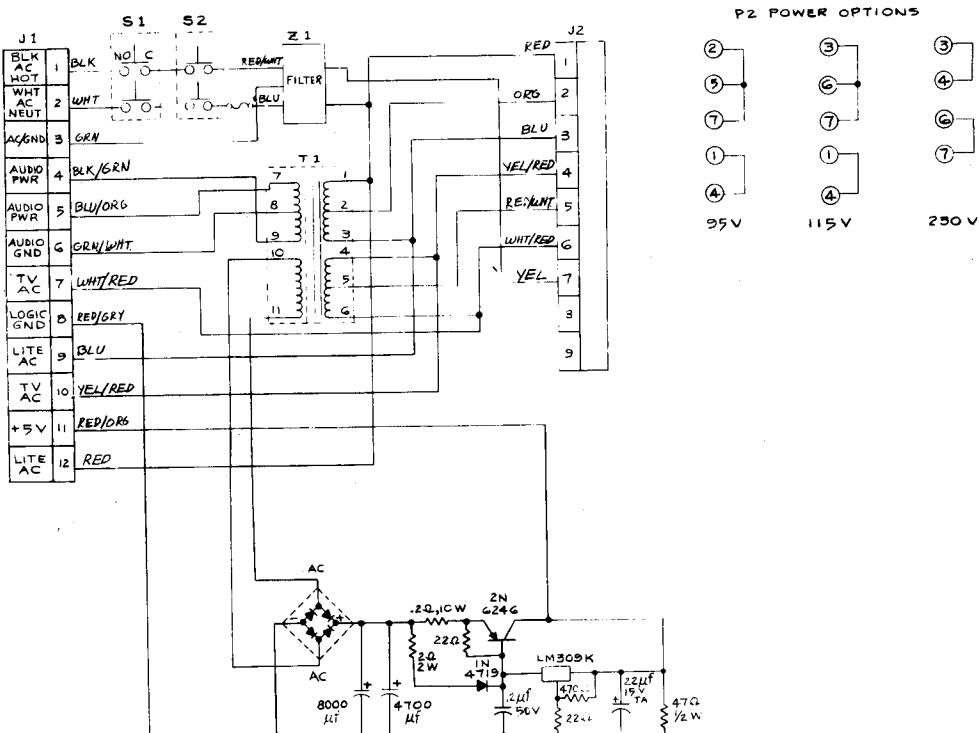
Motion Board 2 of 2

SCHEMATICS

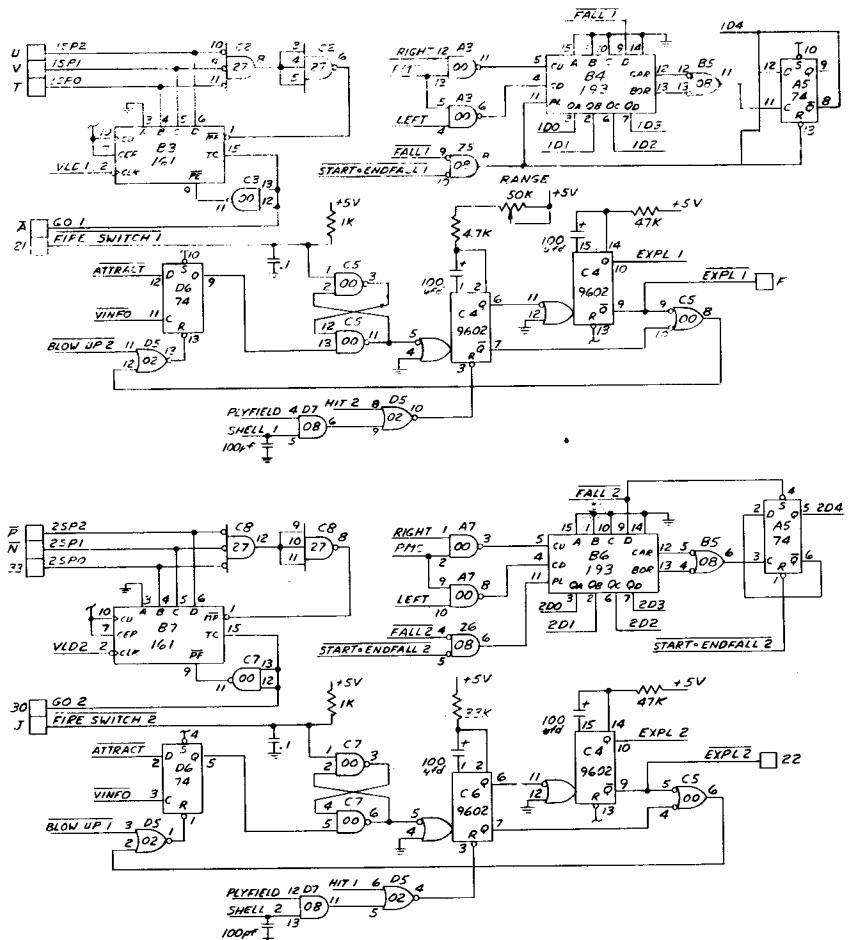
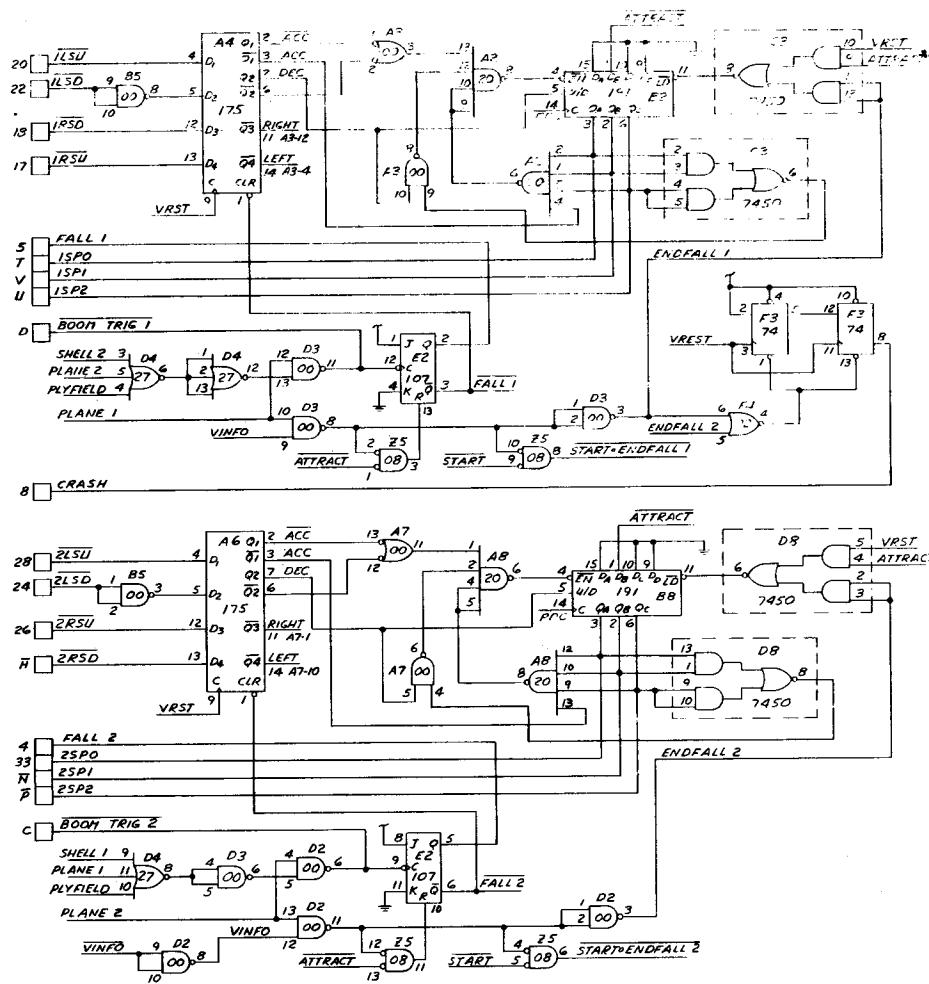
SCHÉMATICS



Cabinet Interconnections

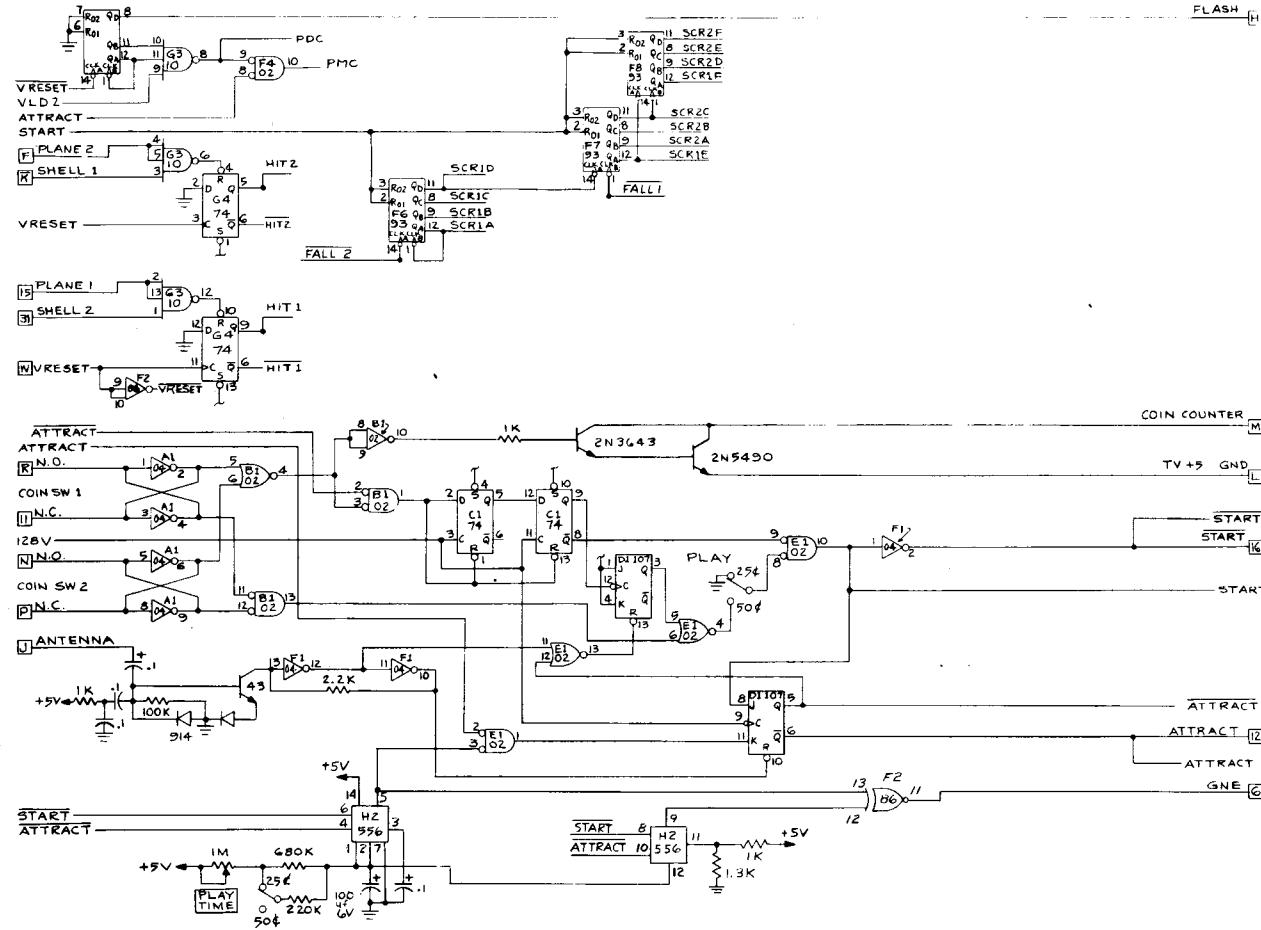


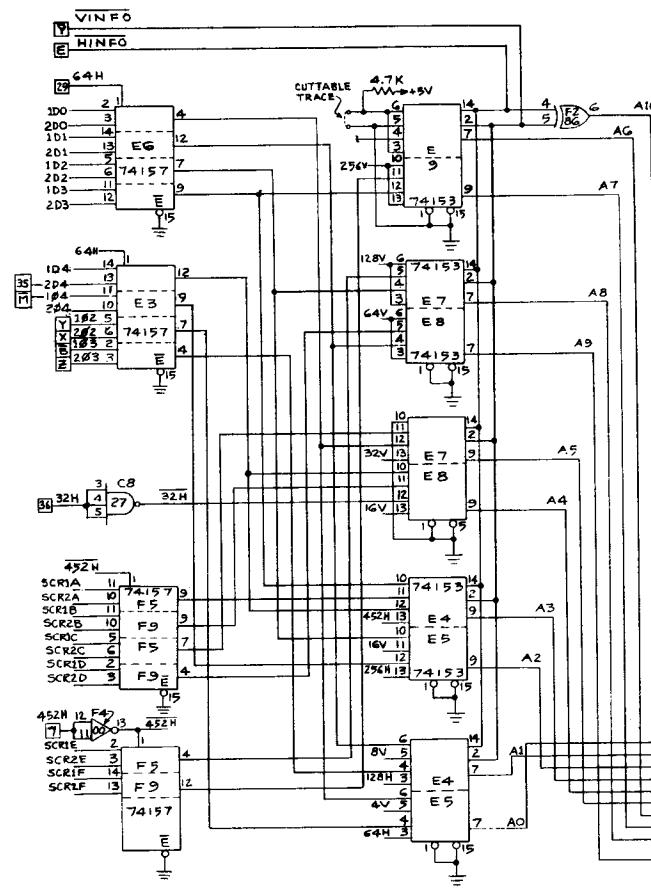
Power Supply



Memory Board 1 of 3

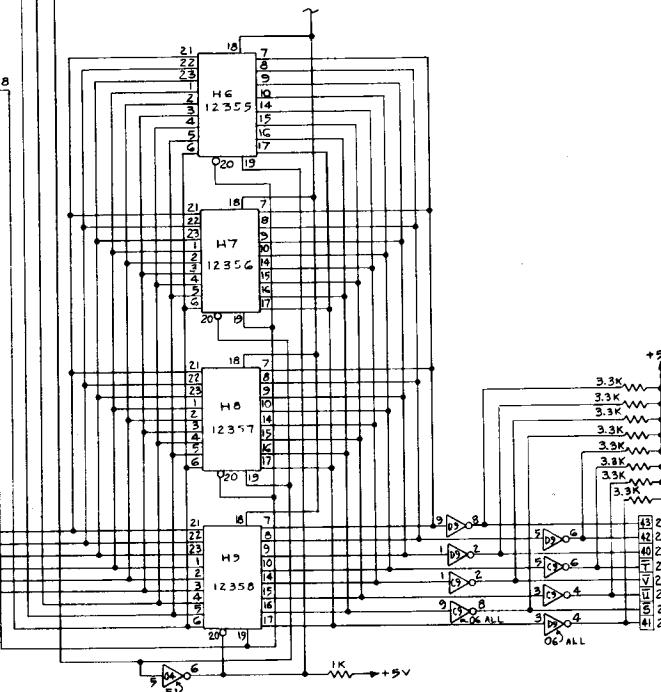
SCHEMATICS





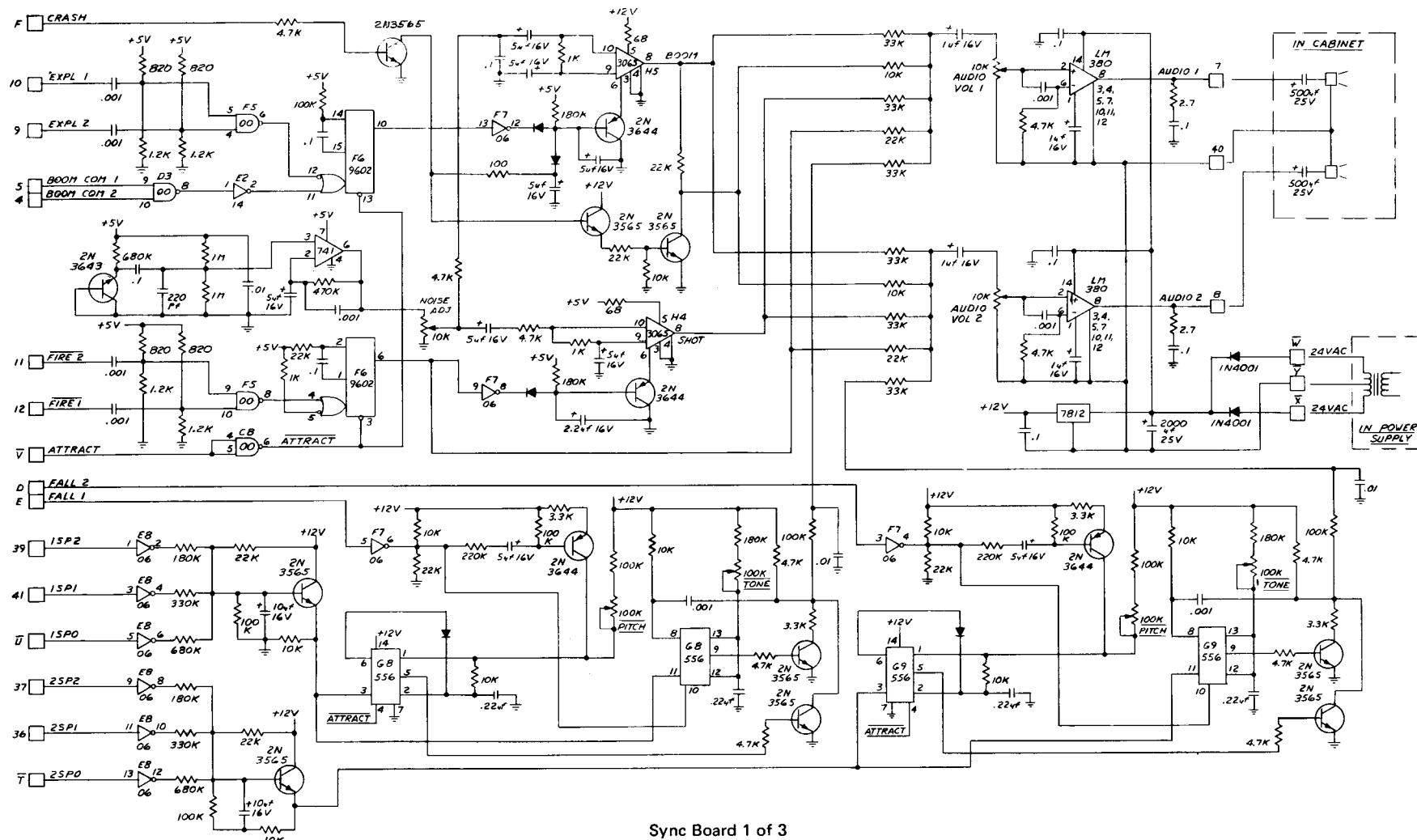
V And H Input Pin Assignments

| | |
|-------------------|-----------------|
| 4V - <u>W</u> | 32H - 36 |
| 8V - <u>D</u> | 64H - 29 |
| 16V - 8, <u>X</u> | 128H - <u>E</u> |
| 32V - 13 | 256H - 13 |
| 64V - 38 | 452H - 7 |
| 128V - 14 | |
| 256V - 39 | |

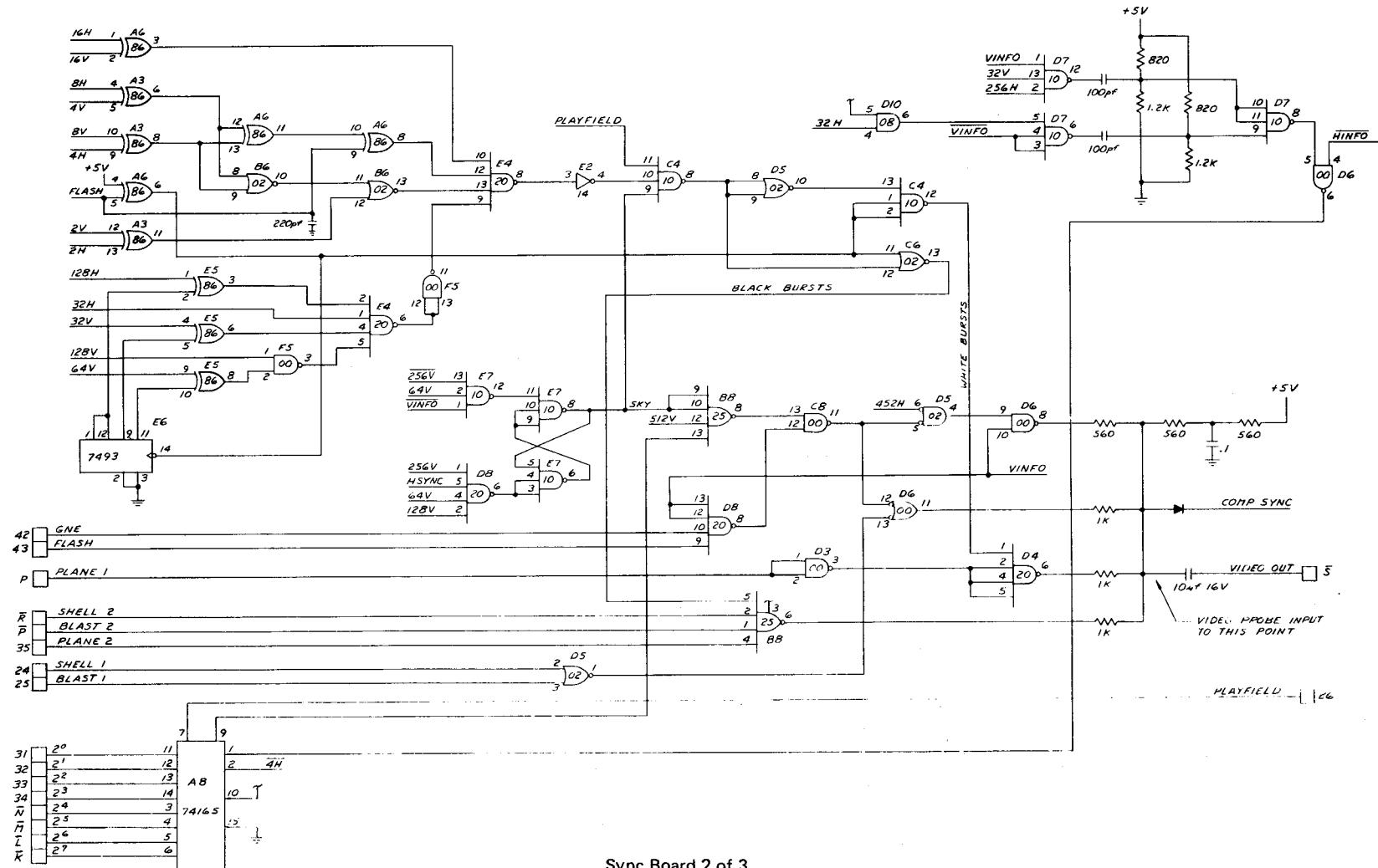


Memory Board 3 of 3

SCHEMATICS

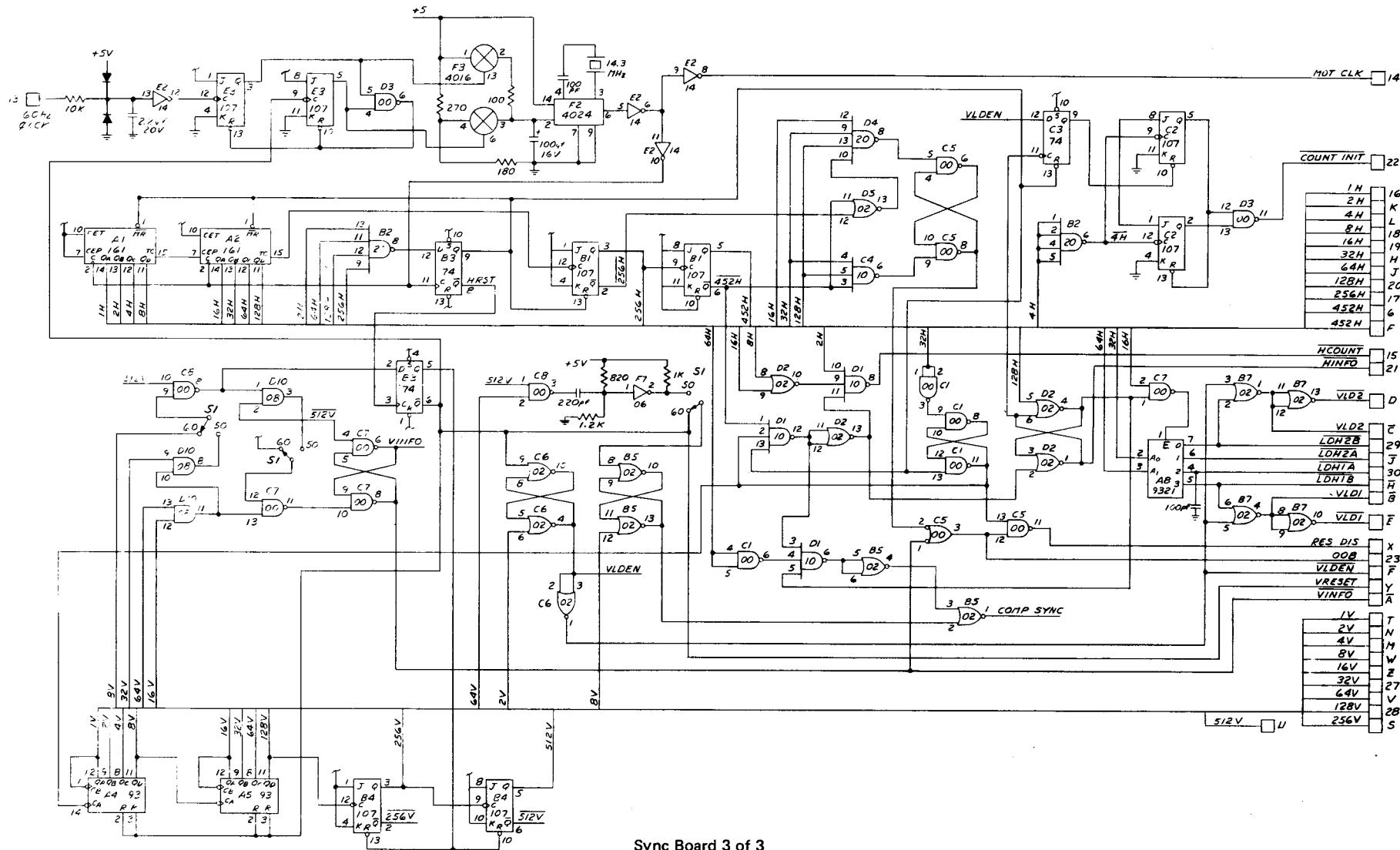


Sync Board 1 of 3



SCHEMATICS

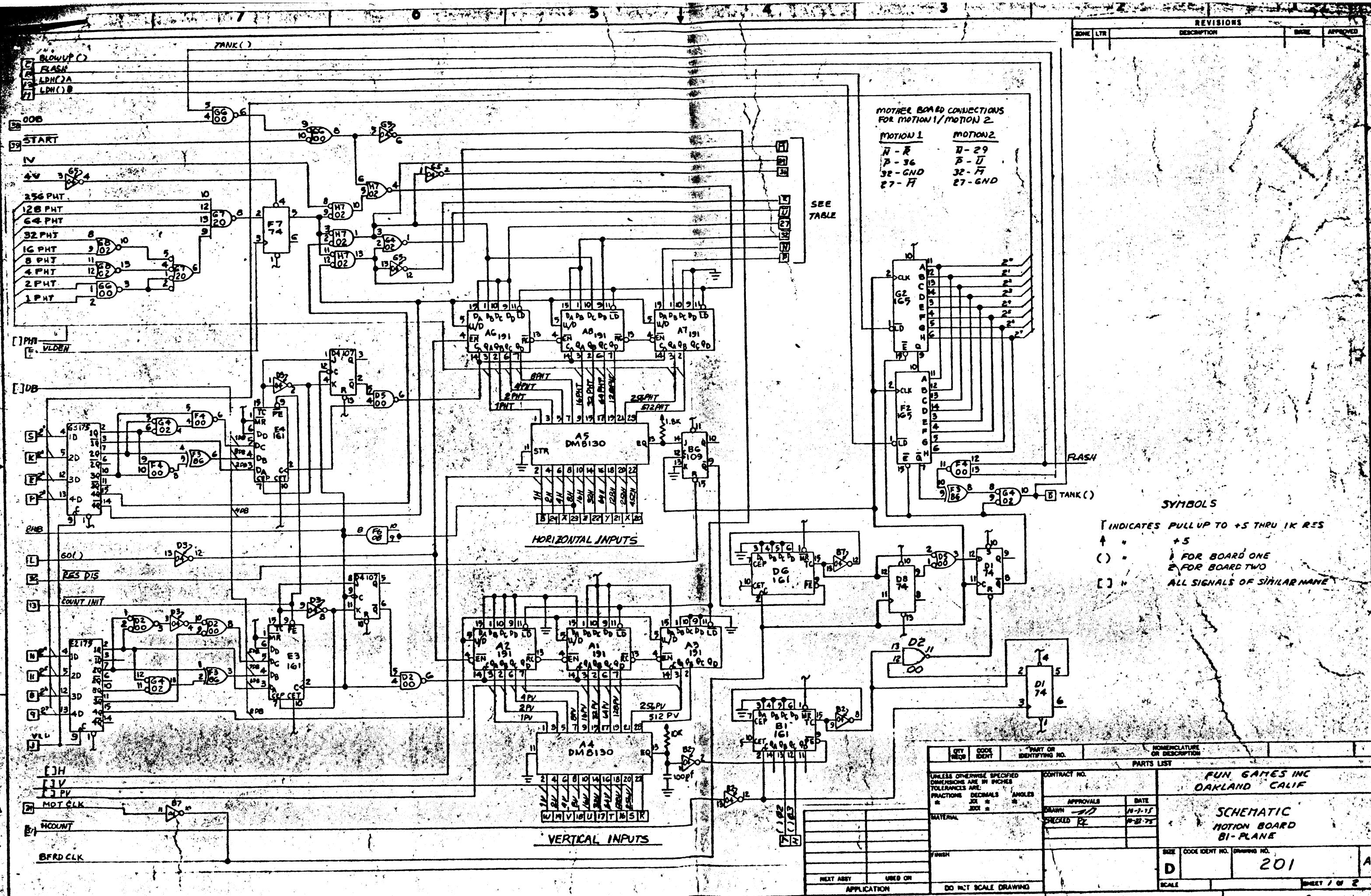
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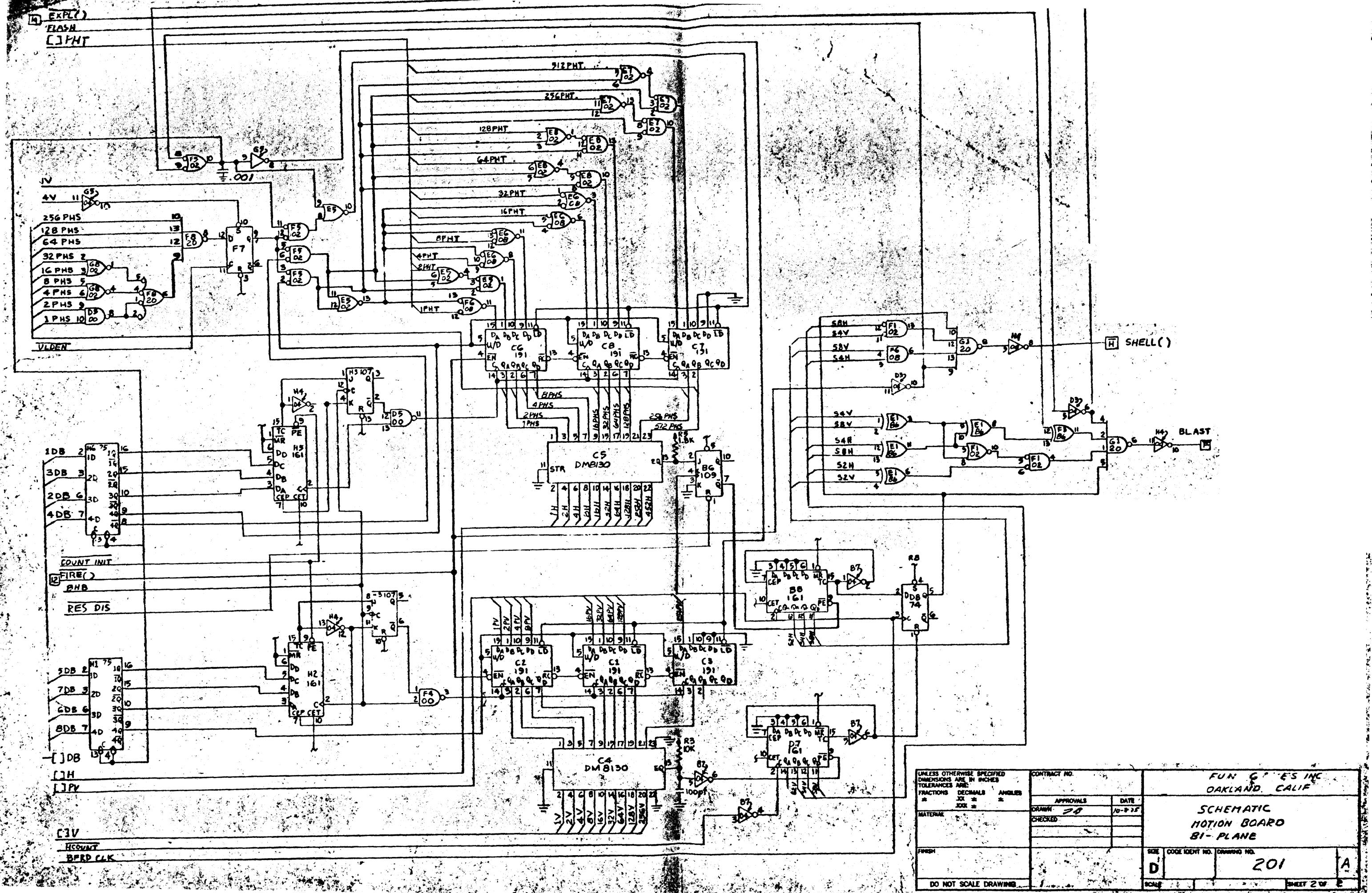


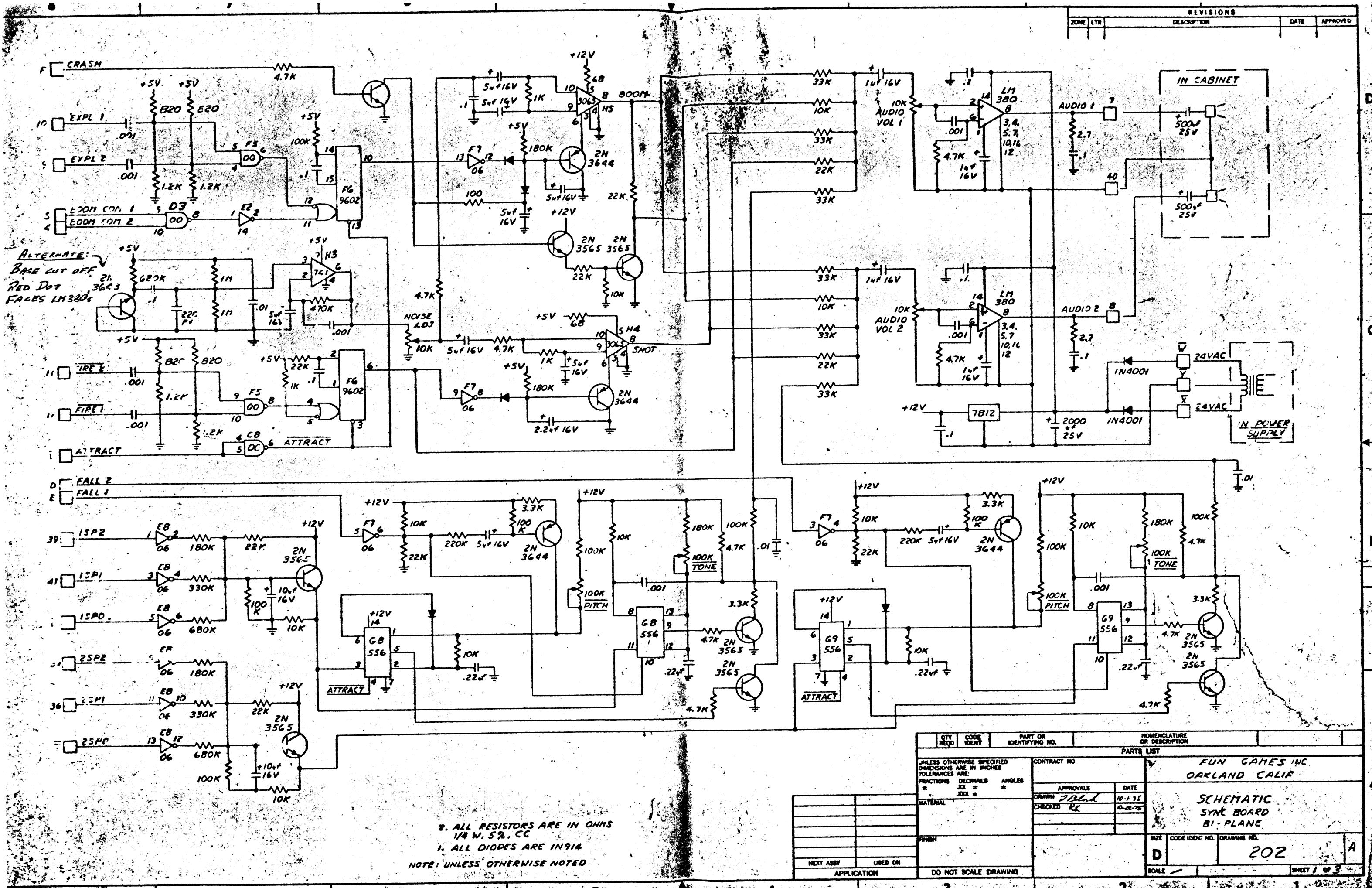
Sync Board 3 of 3

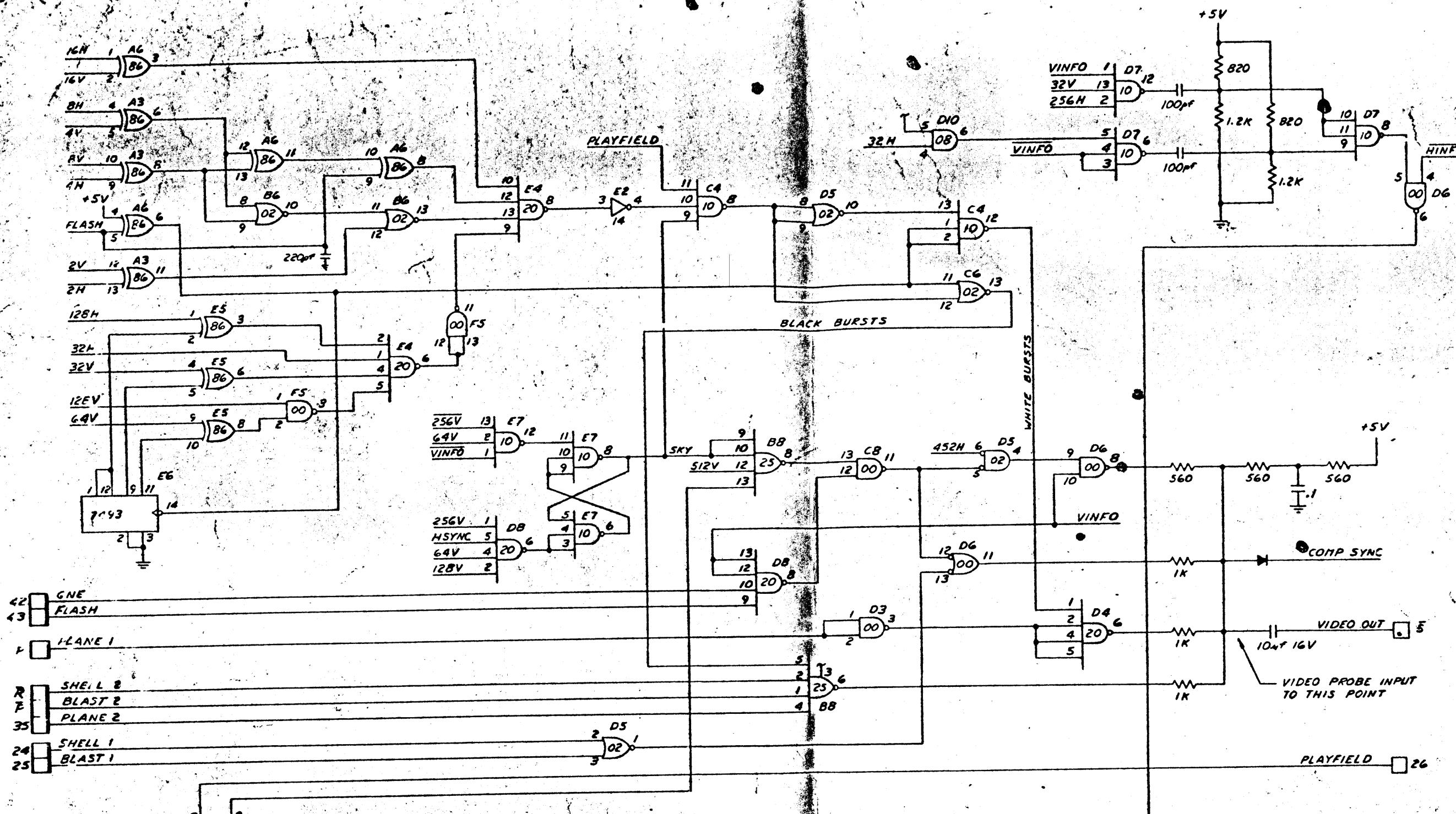
FUN GAMES INC.

8410 AMELIA ST., OAKLAND, CA 94621 (415) 568-5225

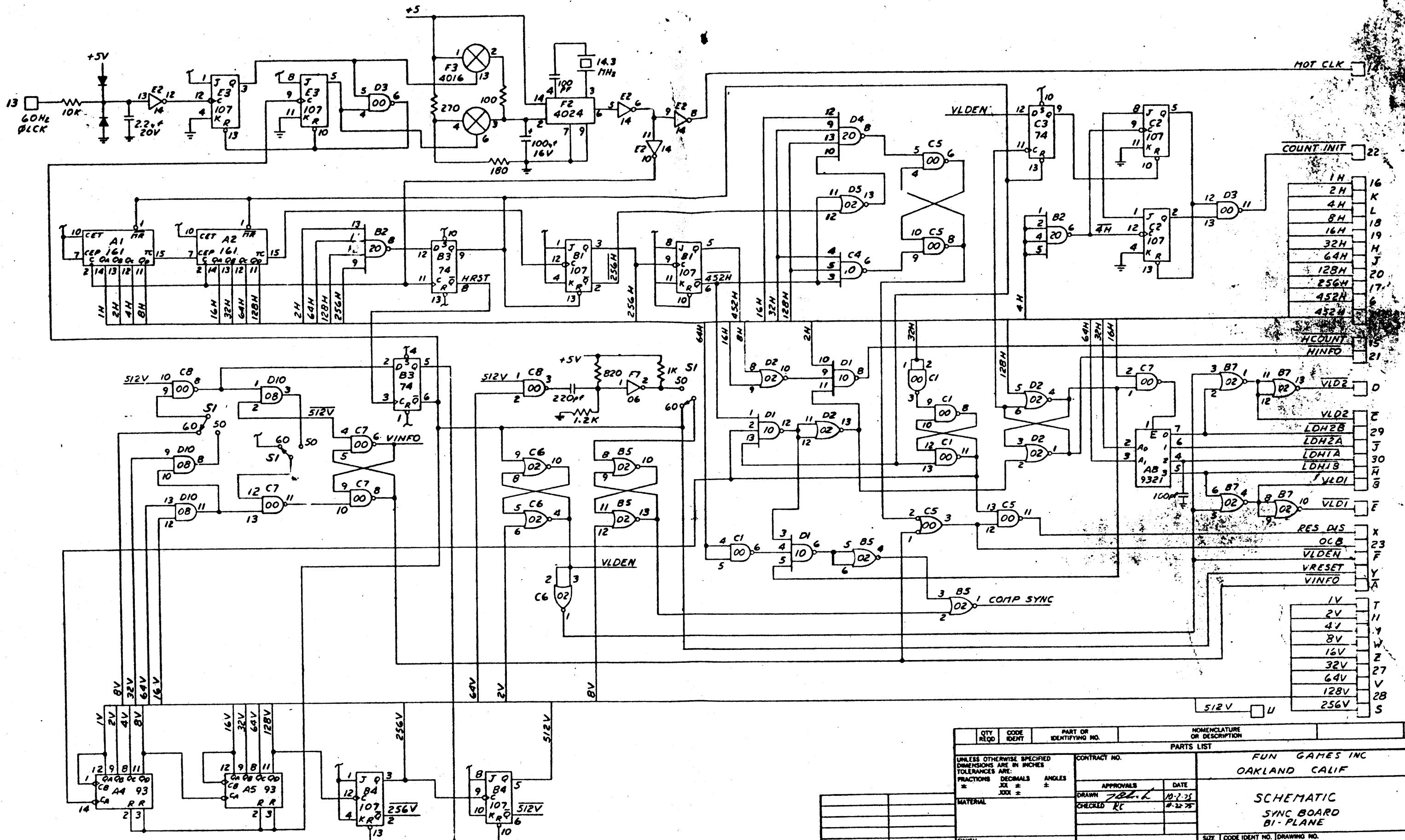


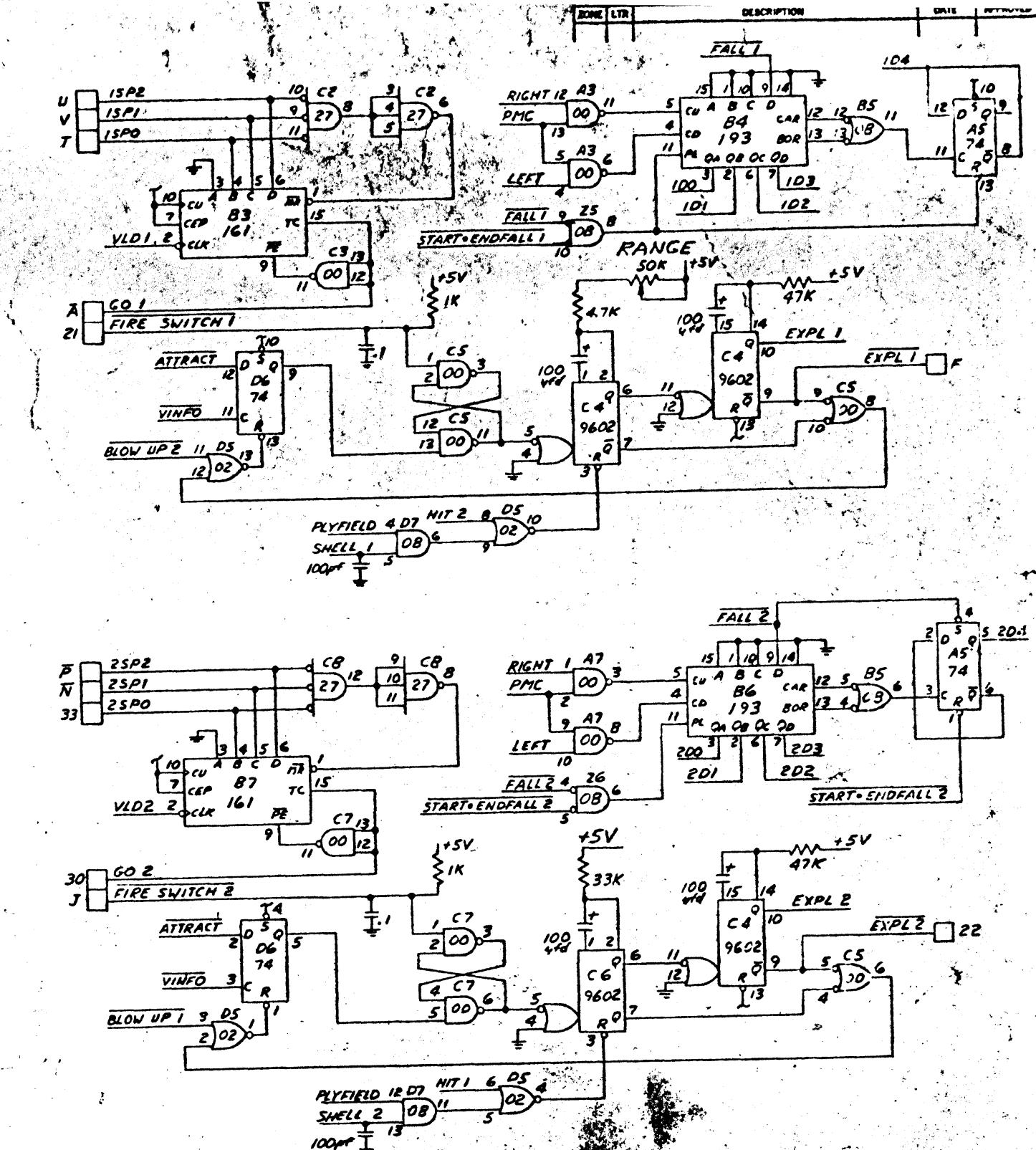
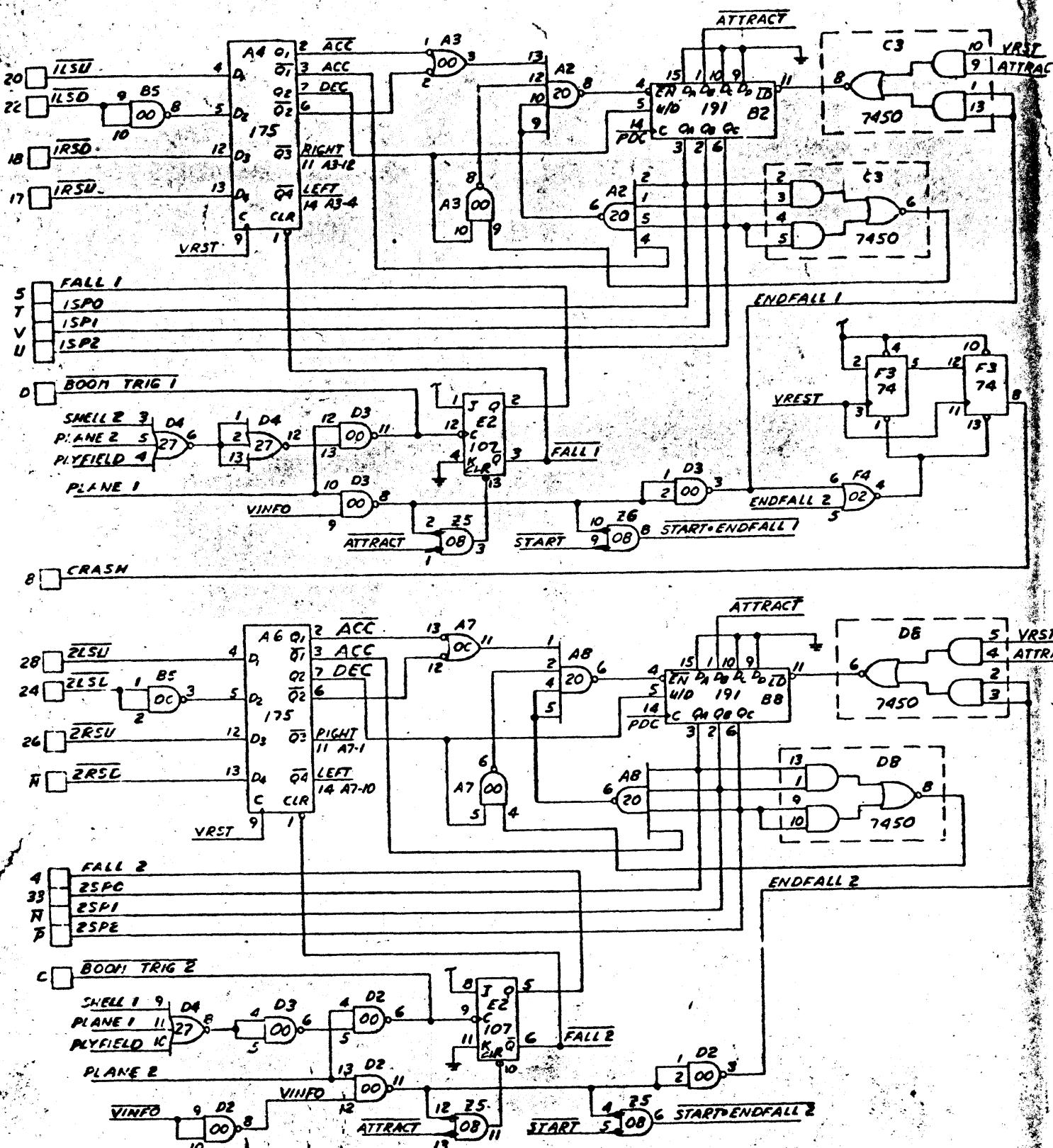




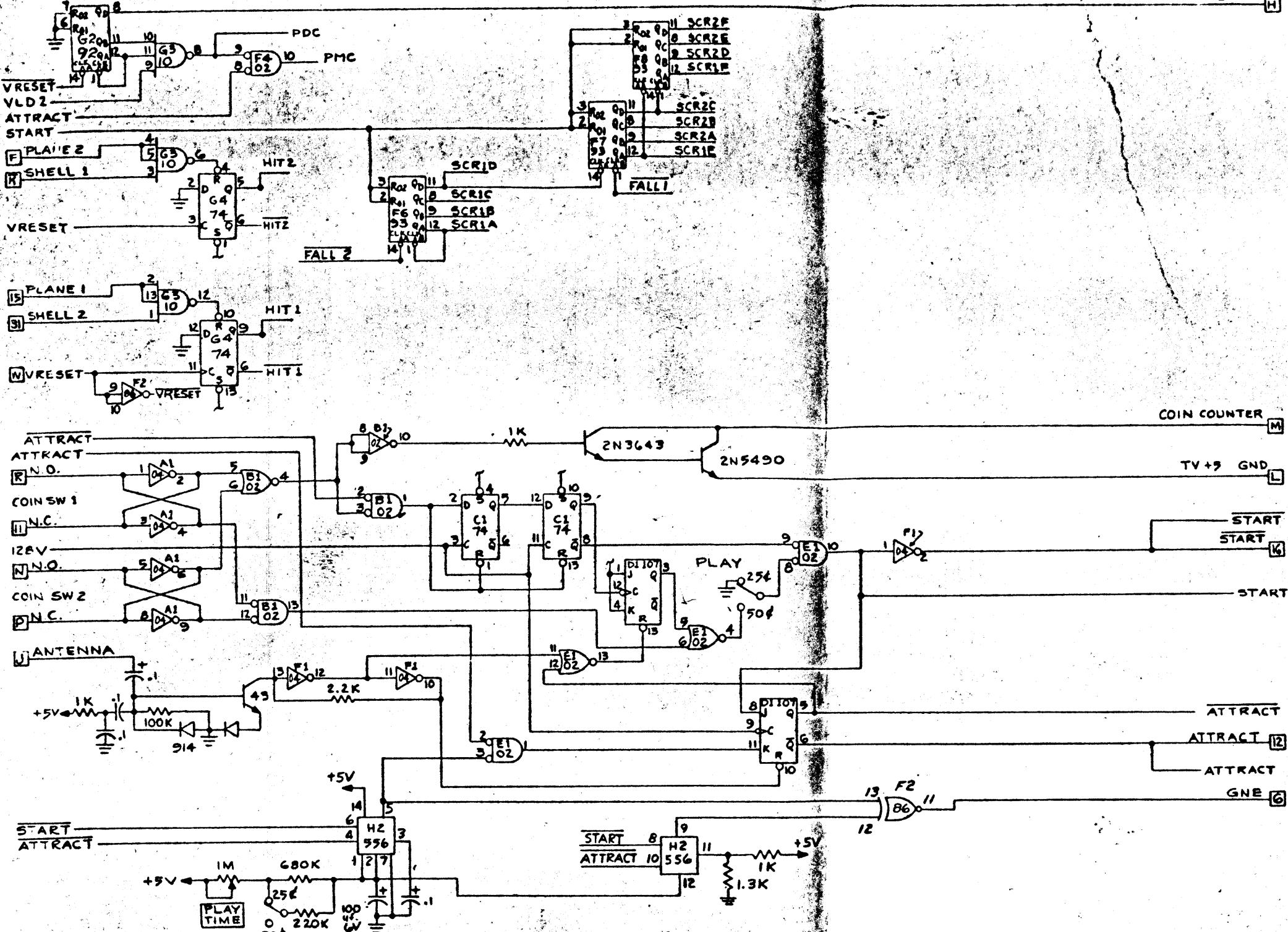


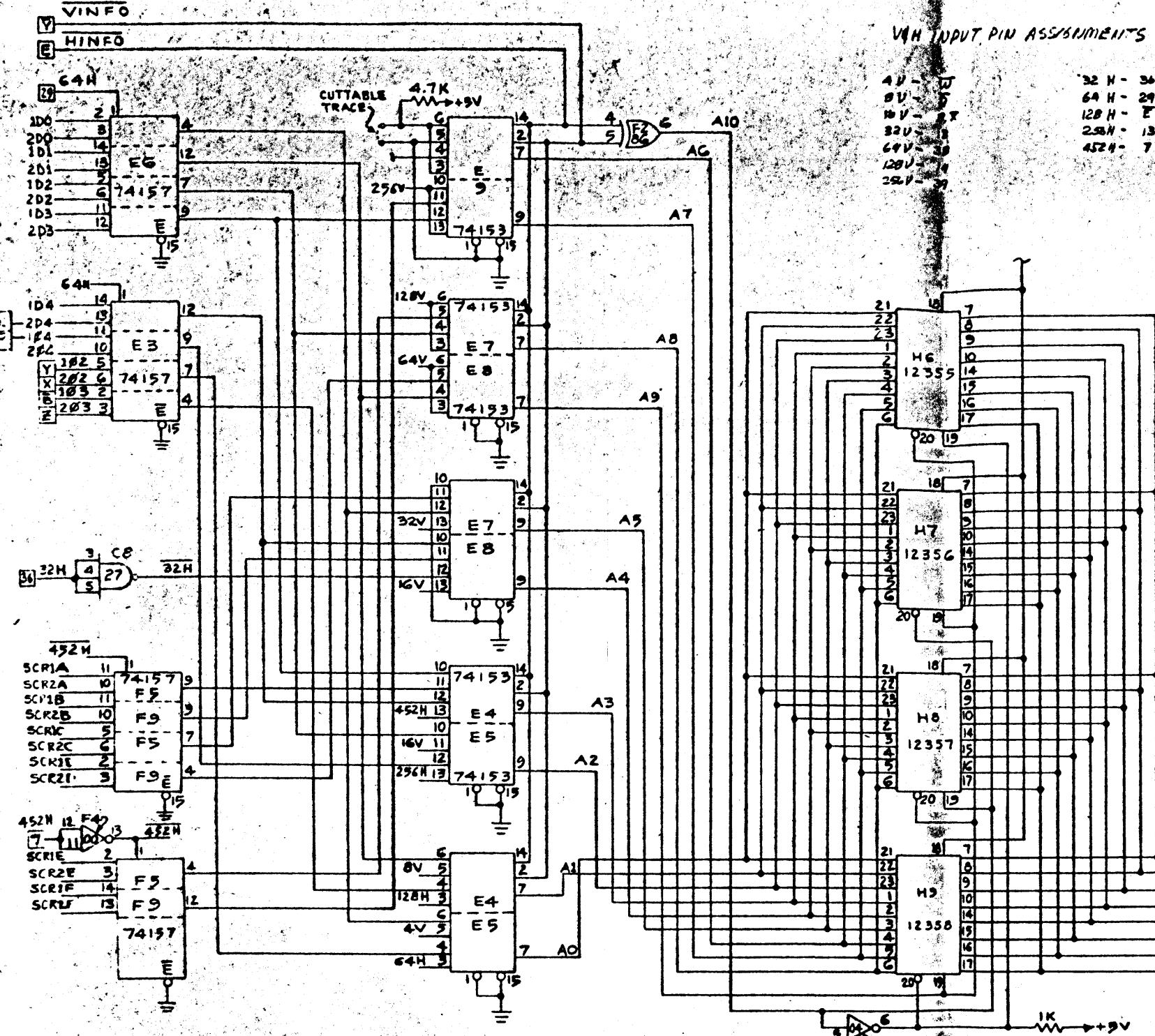
| ZONE | ltr | DESCRIPTION | DATE | APPROVED |
|------|-----|-------------|------|----------|
|------|-----|-------------|------|----------|





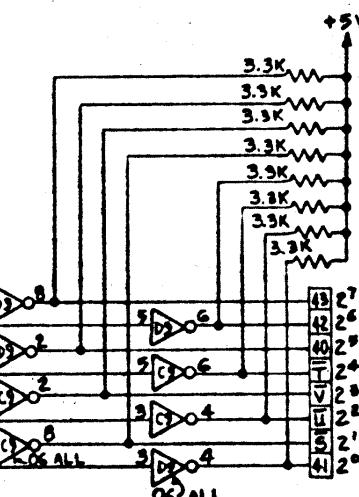
| QTY REQD | CODE IDENT | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | | |
|---|---------------|----------------------------|--------------------------------|----------------|--------------|
| PARTS LIST | | | | | |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES; TOLERANCES ARE: FRACTIONS DECIMALS ANGLES \pm \pm \pm XXX \pm XXX \pm | | CONTRACT NO. | FUN GAMES INC OAKLAND CALIF | | |
| MATERIAL | | APPROVALS | DATE | | |
| | | DRAWN 78 | 10-8-75 | | |
| FINISH | | CHECKED RE | 10-22-75 | | |
| | | | | | |
| NEXT ASBY | | USED ON | | | |
| APPLICATION | | DO NOT SCALE DRAWING | SIZE | CODE IDENT NO. | DRAWING NO. |
| | | | D | 4 | 204 |
| | | | SCALE | | A |
| | | | | | SHEET 1 OF 3 |





VH INPUT PIN ASSIGNMENT

| | | |
|---------|----|---------|
| 4 V - | W | 32 H - |
| 8 V - | 5 | 64 H - |
| 16 V - | 8 | 128 H - |
| 32 V - | 16 | 256 H - |
| 64 V - | 32 | 484 - |
| 128 V - | 64 | |



| QTY REQD | CODE IDENT | PART OR IDENTIFYING NO. | NOMENCLATURE OR DESCRIPTION | |
|--|----------------------|----------------------------|--------------------------------|----------------------------|
| PARTS LIST | | | | |
| UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES | | CONTRACT NO. | | |
| 1/16 1/32 1/16 1/8 .001 .001 1/4 .005 .005 | | | | |
| | | APPROVALS | DATE | |
| | | DRAWN | | |
| | | CHECKED <i>12</i> | <i>20-75</i> | |
| | | | | |
| | | | | |
| MATERIAL | | | | |
| FINISH | | | | |
| ON | DO NOT SCALE DRAWING | | SIZE | CODE IDENT NO. DRAWING NO. |
| | | | D | 204 |
| | | | SCALE | |
| | | | | SHEET 3 OF 3 |